CHAPTER 2. DESCRIPTION OF EXISTING CONDITIONS

a. Existing Airport Facilities

General

The Deer Valley Airport was built on 482 acres in 1960 as a private facility. A single 10,200-foot long runway was constructed on the site, with the eastern half of the runway also serving as a drag strip. On August 4, 1971, the City of Phoenix acquired the entire 482-acre facility, and leased an adjacent area which included the old terminal area. After construction of the new terminal area, the lease on the old terminal area was terminated. A new runway was constructed north of the previously existing runway in 1974. Following this, the middle 5300-foot portion of the old 10,200-foot runway was reconstructed to a width of 100 feet, with the remaining 4900-feet marked as runway overrun areas. Between 1974 and 1983, numerous hangar facilities and ramp areas were constructed on the airport, which by 1984 was accommodating 657 based aircraft and 241,000 annual operations.

An inventory of airport facilities was made during the week of October 8-12, 1984 to initiate an update of the Airport Master Plan prepared in 1972 by the firm of Johanesson and Girand. The facilities inventoried, along with facilities the City plans to construct in 1985, are described on the following pages.

Runways and Taxiways

The existing runway/taxiway network is depicted in Figure 2-1 (1984 photo). There are presently two runways on the airport, Runways 7L/25R and 7R/25L. Runway 7R/25L is the main airport runway, being 5,300 feet long and 100 feet wide and nearest to the terminal facilities. The runway also has two long overruns, 2,200 feet on the west end and 2,700 feet on the east end, both 50-feet wide for the most part. These overrun areas are part of the original runway constructed on the site.

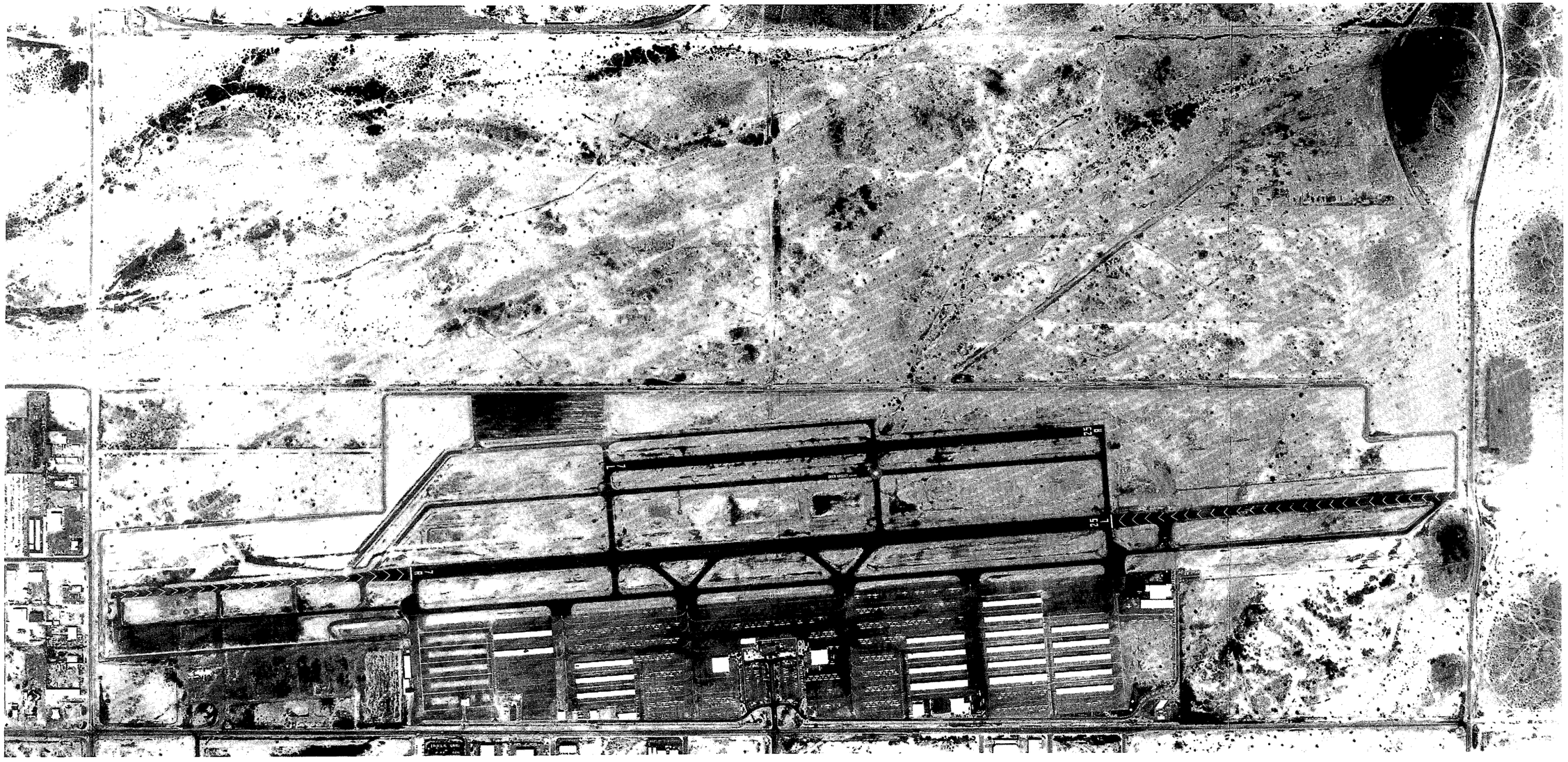
The rated strength of Runway 7R/25L is 40,000 pounds Single-Wheel, 50,000 pounds Dual-Wheel and 80,000 pounds Dual-Tandem-Wheel, as reported in the August 1984 FAA Airport/Facility Directory. A VASI-2 (two box Visual Approach Slope Indicator) and REILs (Runway End Identifier Lights) are installed on both ends of the runway as visual landing aids. With regard to instrument approach aids, the only available aid is an NDB (Non-Directional Beacon) approach to Runway 25L off of the Scottsdale NDB. This procedure, depicted in Figure 2-2, provides approach minimums of 2540 feet MSL (1100 feet AGL) and 1-1/4 mile visibility. The runway is marked for this non-precision use and is equipped with Medium Intensity Runway Lights (MIRL).

Runway 7L/25R is 3800 feet long and 75 feet wide, with no paved overruns or blast pads. The rated strength of the runway is 20,000 pounds Single Wheel. There are no visual or instrument approach aids installed on this runway, which is used predominantly for "touch-and-go" training flights by light aircraft. MIRLs are planned for installation on the runway in 1985.

EXISTING AIRPORT FACILITIES

FIGURE 2-1

PHOENIX–DEER VALLEY MUNICIPAL AIRPORT



PHOENIX—DEER VALLEY MUNICIPAL AIRPORT

Orig

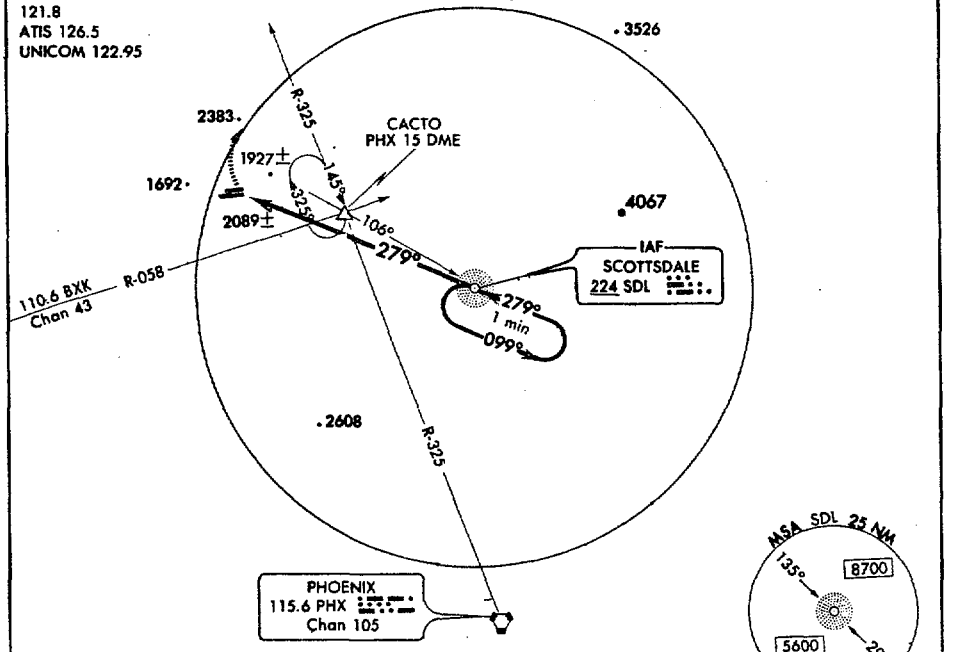
NDB RWY 25L

280

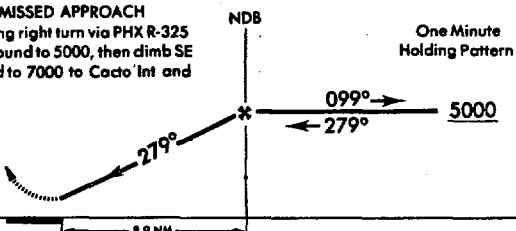
AL-6646 (FAA)

PHOENIX-DEER VALLEY MUNI (DVT)
PHOENIX, ARIZONA

PHOENIX APP CON
119.2 379.8
DEER VALLEY TOWER*
118.4 Rwy 7R-25L
120.2 Rwy 7L-25R
GND CON
121.8
ATIS 126.5
UNICOM 122.95



MISSED APPROACH
Climbing right turn via PHX R-325 NW-bound to 5000, then climb SE -bound to 7000 to Cacto Int and hold.

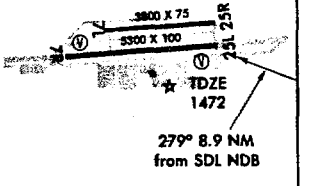


CATEGORY	A	B	C	D
S-25L	2540-1¼ 1068 (1100-1¼)	2540-1½ 1068 (1100-1½)	2540-3 1068 (1100-3)	NA
CIRCLING	2540-1¼ 1065 (1100-1¼)	2540-1½ 1065 (1100-1½)	2540-3 1065 (1100-3)	NA

When control zone not in effect, use Phoenix Sky Harbor altimeter setting and increase all MDAs 60 feet.
Night circling not authorized north of Rwy 7R-25L.

NA

ELEV 1475



MIRL Rwy 7R-25L
REIL Rwys 7R and 25L

FAF to MAP 8.9 NM					
Knots	60	90	120	150	180
Min:Sec	8:54	5:56	4:27	3:34	2:58

NDB RWY 25L

33°41'N-112°05'W

PHOENIX, ARIZONA
PHOENIX-DEER VALLEY MUNI (DVT)

The taxiway system serving Runway 7R/25L includes a full length parallel taxiway on the south side, spaced 300 feet centerline to centerline, with holding pads at both ends. A series of angled and one right-angled exit taxiways, plus the runway end taxiways, transition aircraft between the runway and the parallel taxiway. In addition, parallel taxiways are provided along the entire length of both of the runway's overruns, spaced 250 feet centerline to centerline. Six right-angled taxiways connect the parallel taxiway to Runway 7R/25L with the ramp area, and three right-angled taxiways connect Runway 7R/25L to the south parallel taxiway to Runway 7L/25R.

The taxiway system serving Runway 7L/25R includes a full length parallel taxiway on the south side, spaced 200 feet centerline to centerline, and a partial parallel taxiway north of the west part of the runway, spaced identically. Other than the runway end taxiways, there is only a single exit taxiway to the runway, at approximately its midpoint. Two temporary taxiways, at the western end of both of the parallel taxiways, extend westerly and then diagonally until they intersect with the western overrun to Runway 7R/25L.

Hangar Facilities

There are three general hangar types in existence on the airport - T-hangars, conventional hangars, and executive hangars. There are currently 232 T-hangars, which were built in phases between 1974 and 1983; 210 are small T-hangars (937 SF each) and 22 are large T-hangars (1660 SF each). Current plans call for 56 small T-hangars and 11 large T-hangars to be constructed on the west ramp in 1985.

Conventional hangars include two main FBO facilities on either side of the airport terminal, constructed in 1975. Each is 16,818 SF in total building size with 12,960 SF of hangar floor area. The east hangar is occupied by Monarch Aviation, with the west hangar vacant, but most recently occupied by Phoenix Air Center. Four other FBO hangars are situated on the airport, each owned by its operator but sitting on land leased from the City. These hangars, situated along Deer Valley Drive, include the following:

Deer Valley Avionics (1977)	12,000 SF±
Arizona Airplanes (1977)	7,200 SF±
Sunburst Aviation (1976)	6,000 SF±
Thunderbird Aviation (1976)	4,800 SF±

A 12,000 SF police hangar and facility, located on the eastern end of the ramp, was constructed in 1978.

There are four attached executive hangars located adjacent to and south of the policy facility, each with an area of 3720 SF.

Aircraft Apron and Tie-Down Facilities

The total apron area on the airport, including aircraft tie-down areas, is approximately 319,000 SY; this includes area of 126,000 SY east of the terminal, 125,000 SY west of the terminal, 32,000 SY in front of the terminal, and 36,000 SY in the northwest portion of the airport.

There are currently 726 tie-down spaces on the apron areas, 63 of which are covered. Of the 726, 579 are available for lease from the City to private aircraft owners, 62 are used by the City for transient aircraft, 79 are leased to FBOs, and 6 are leased to the police department. Seventy of the City's 579 spaces for rent are on the north side of the airport, near the west end of runway 7L/25R.

Current 1985 plans are to construct 9 new rows of covered tie-downs on an existing portion of the west ramp, providing 181 new covered spaces. These new covered areas will assist in reducing the 150-aircraft waiting list for covered spaces.

Terminal Facilities

A two-level terminal building was constructed on the airport in 1975 to provide airport users with convenient service facilities. The facilities on the two floors include the following areas (aproximate):

First Floor

Lounge Area	1700 SF
Restaurant	3400 SF
Cocktail Lounge	600 SF
Ramp Service Personnel Area	900 SF
Vacant Air Taxi Facility	500 SF
Pilot Briefing Area	200 SF
Rental Car Counter	100 SF
Restrooms, Circulation, and Mechanical	2400 SF
	9800 SF

Second Floor

Administrative Offices	800 SF
Conference Room	400 SF
Restrooms, Circulation, and Mechanical	1200 SF
	2400 SF

Fueling Facilities

Until 1984, all aircraft refueling was performed by City personnel using City owned trucks. Fuel is stored in an underground fuel farm in the southeast corner of the airport; the farm includes six 20,000 gallon tanks, with four of these holding AVGAS and two holding JET-A. Three of the tanks were constructed in 1975, with the remaining three added in 1980.

Total airport fuel flow in gallons for fiscal years 1979-1983 was as follows:

FY	AVGAS	JET-A	Total	Aircraft Movements
1979	763,000	230,000	993,000	227,000
1980	809,000	273,000	1,082,000	247,000
1981	739,000	306,000	1,046,000	224,000
1982	645,000	222,000	867,000	233,000
1983	658,000	301,000	959,000	241,000

In 1984, the City amended its airport rules to permit private FBOs to conduct fueling activities. Since then, one operator (Deer Valley Avionics) has installed fueling facilities and has begun its own fueling activities.

Automobile Parking and Access

The Airport is provided with convenient access to Interstate 17 (about one mile west of the airport) via Deer Valley Drive. A four-lane connector road provides access to the airport terminal from Deer Valley Drive; an additional airport service road parallels Deer Valley Drive on airport property and provides access to the FBOs along the southern edge of the airport from the airport connector road.

Automobile parking is provided free of charge at the airport. A main lot in front of the passenger terminal provides approximately 300 spaces for joint use by terminal users and users of the adjacent FBOs. Other lots serve the T-hangar areas and the rest of the FBOs east and west of the terminal with an additional 470 spaces, for a total of 770 spaces. Additional spaces are provided at the police facility.

Other Facilities

Other facilities of importance with respect to planning on the airport include an FAA-operated control tower, an airport maintenance facility, and a fire station.

The control tower is located directly to the east of the passenger terminal. It is currently staffed from 6:00 a.m. to 9:00 p.m.

The airport maintenance facility is located in a building constructed in the 1960's on the original airport site (western portion of the existing airport). The building itself is in poor condition; therefore, the Master Plan will address replacement of the facility. New locations will be addressed in the Facility Requirements section of this report (Chapter 5).

There is a City fire station located on the airport, which responds primarily to off-airport calls. The equipment in the fire station, along with a City foam vehicle kept adjacent to the terminal building, is available for airport emergencies. The Fire Department is planning the construction of a new facility off the airport to replace the existing one.

b. Air Traffic Activity and Procedures

Based Aircraft

At the end of 1984, there were 657 aircraft based at the Deer Valley Airport, compared to 618 aircraft in 1983. The totals comprised the following categories:

	1984	1983
Single-Engine Propeller (Piston)	571	537
Light Twin-Engine Propeller (Piston)	40	36
Medium Twin-Engine Propeller (Piston)	11	11
Turboprop	8	8
Turbojets/Turbofans (Cessna Citations)	2	2
Homebuilts and Warbirds	14	14
Jet Helicopters	5	4
Piston Helicopters	6	6
	657	618

Between 1972 and 1984 the number of based aircraft has grown from 305 to 657, an annual growth rate of 6.6 percent. A peak of 657 aircraft was based in Deer Valley in 1984 (Figure 2-3).

Air Traffic Activity

For the 12 months ended September 1984, a total of 241,000 operations was conducted at the Deer Valley Airport. This total comprised 105,000 itinerant operations and 136,000 local operations (touch-and-go's).

Between 1972 and 1984, airport activity increased from 142,000 operations to 241,000 operations, for an annual growth rate of 4.5 percent. A peak of 296,553 operations was conducted in 1979. (Figure 2-3).

With respect to hourly, daily, and monthly operations, the peak day during FY 1984 included 1287 operations (195 percent of the average day); the peak hour included 194 operations (29 percent of the average day). The peak month for activity was May, with 20,700 operations (9 percent of annual total).

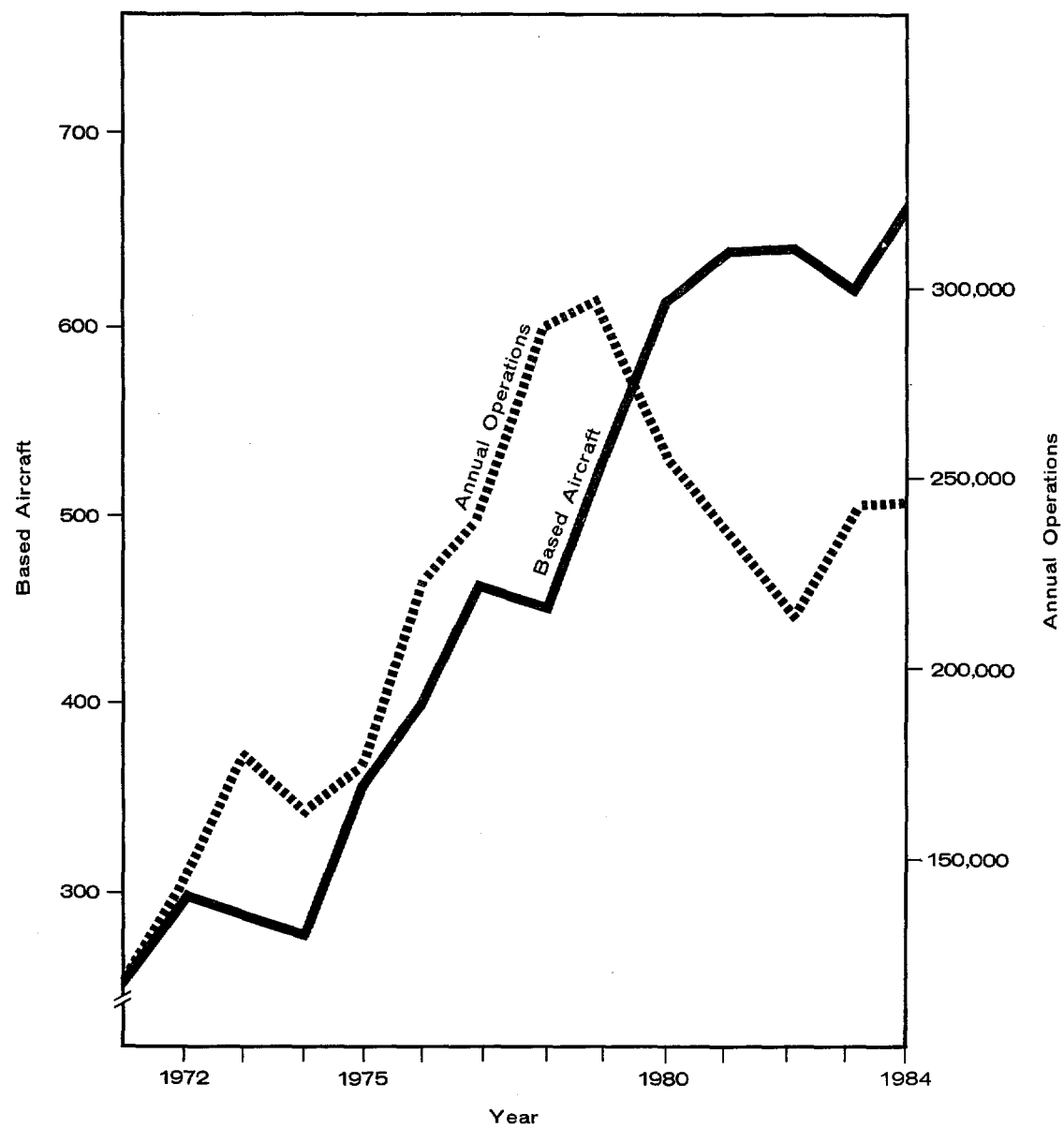
During FY 1983, a detailed study was completed of traffic levels during each hour of the day that the control tower was open. The 12-month average for each hour was as follows:

Local Time	Average Hourly Operations	Local Time	Average Hourly Operations
6-7	23	13-14	41
7-8	49	14-15	46
8-9	53	15-16	45
9-10	66	16-17	45
10-11	62	17-18	49
11-12	58	18-19	40
12-13	49	19-20	31
		20-21	21

AIRPORT ACTIVITY, 1972-1984

FIGURE 2-3

PHOENIX–DEER VALLEY MUNICIPAL AIRPORT



Air Traffic Control Procedures

The flow of air traffic into and out of the Deer Valley Airport is controlled by an FAA-operated Air Traffic Control Tower (ATCT) on the airport between 6:00 a.m. and 9:00 p.m. At other times, the flow of traffic is managed by the individual pilots of aircraft using the facility. The overall traffic flow can best be described looking at two main components - runway use and arrival/departure procedures.

Runway use includes the split of traffic between Runways 7R-25L and 7L-25R, and the use of each of these runways in an easterly or westerly direction. On an annual basis, winds in the Phoenix area favor operations to the east 56 percent of the time and operations to the west 44 percent of the time. This correlates well with the estimate by Deer Valley ATCT personnel of an estimated 60/40 split between operations on Runways 7L and R, and 25L and R. Runway 7R-25L is used primarily for itinerant operations, and for all activity by large aircraft and turbojets, while Runway 7L-25R is used primarily for training operations (55 percent of airport total). Helicopter operations, which account for an average of 40 daily movements, are not conducted on either of the two runways specifically - instead, they are directly to and from "movement areas," which are defined by ATCT as runways, taxiways and intersections north of the main ramp. Police helicopter activity is conducted to and from the police hangar ramp.

The departure and arrival procedures used by fixed-wing aircraft at the airport are standard; departing aircraft make a 45-degree turn after reaching a safe altitude if leaving the airport vicinity, or fly a standard rectangular pattern for training activity. High performance aircraft (turbojets), which usually depart on IFR flight plans, fly a two-mile straight segment off Runway 7R before turning onto airway V105-257. Westbound departures fly one mile to a point just beyond Interstate 17 and are then vectored toward V105-257.

Arriving fixed-wing aircraft either enter the downwind or base legs of the traffic pattern to the runway they are landing on, or are cleared for a straight-in approach by ATCT. High performance aircraft typically fly a 3-5 mile straight-in final.

Helicopter arrival/departure procedures are specified in FAA Tower Order 7110.6B, dated April 30, 1983. Police helicopters generally fly to and from their base via 7th Street to the south. The other major helicopter operator, the Bureau of Reclamation, generally operates over major roads in the airport vicinity (I-17, Pinnacle Peak Road, and Deer Valley Drive) for noise abatement purposes, to the Granite Reef helicopter site (Central Arizona Project Headquarters).

c. Meteorological Data

An analysis of airport meteorological data was made with regard to two relevant factors: wind, and ceiling and visibility.

Deer Valley Airport meteorological information was obtained from the Phoenix Sky Harbor International Airport Climatological Summary. These data are used because of the similarities in geographical and climatic factors between Sky Harbor Airport and Deer Valley Airport and because data from Sky Harbor is the best available source.

FAA standards requires that airports served by large general aviation aircraft (business jets) provide a 95 percent wind coverage with a maximum crosswind component of 15 mph (13 knots). For airports serving small general aviation aircraft the maximum recommended crosswind component is reduced to 12 mph (10.5 Knots). Should the runway system be unable to meet these requirements, an additional runway(s) is recommended to meet the requirements.

Table 2-1 shows the Deer Valley runway system wind coverage under all weather conditions. The overall wind coverage of Runway 7-25 is 98.2 percent with 12 mph crosswind component and 99.4 percent with a 15 mph crosswind. These satisfy the FAA wind coverage criteria. The coverages were calculated from the All-Weather Wind Rose presented in Figure 2-4. The data used to develop the wind rose was the latest available consolidated data (1965-1974 for Sky Harbor International Airport) from the National Climatic Center.

There are insufficient wind data to establish an IFR wind rose for Deer Valley Airport. What information is available indicates that the total percentage of time when IFR conditions apply is only 0.2 percent annually. Under these conditions, about 52 percent of the wind originates from directions between ENE to SE and about 13 percent of the time from between WNW to SW. Therefore, an IFR approach to the east at Deer Valley would provide the most utility.

TABLE 2-1

RUNWAY WIND COVERAGE
DEER VALLEY MUNICIPAL AIRPORT

Runway Configuration	All Weather Coverage 15 mph	12 mph
RWY 07 (Calm 17.3% incl)	64.7%	64.1%
RWY 25 (Calm 17.3% incl)	52.1%	51.4%
Total 07-25	99.4%	98.2%

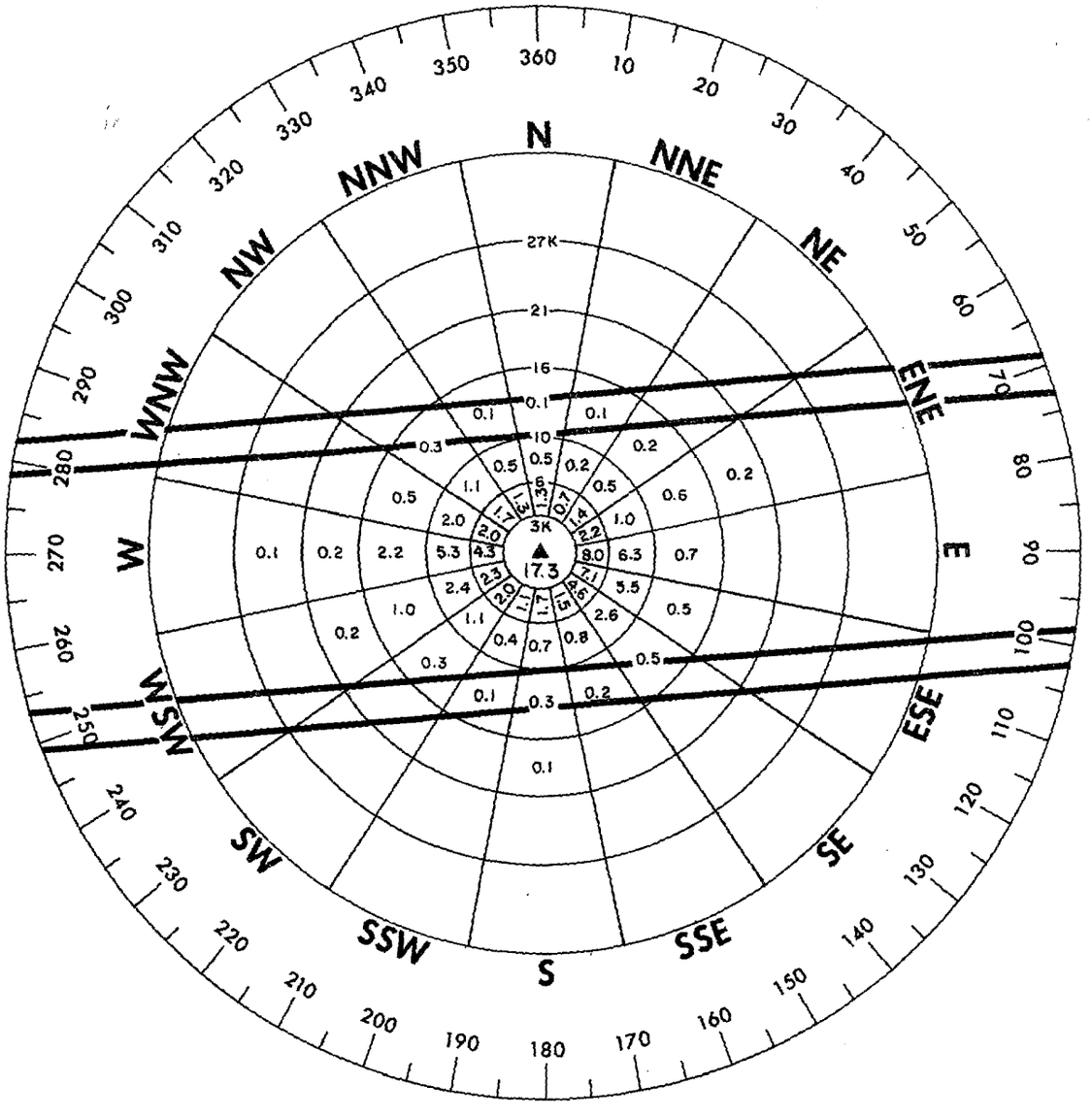
d. Community Development and Land Use

Deer Valley Airport is located on the northern edge of the Phoenix urban area. The airport boundary is less than one mile from Interstate Highway 17, the Black Canyon Freeway. The freeway is the catalyst for much of Phoenix's growth to the north and a corridor for new high technoogy industrial development.

ALL-WEATHER WIND ROSE

FIGURE 2-4

PHOENIX–DEER VALLEY MUNICIPAL AIRPORT



Source: Phoenix Sky Harbor International Airport

Period: 1965-1974
National Climatic Center

Coverage with Maximum
12 MPH Crosswind Component
= 98.2%
15 MPH Crosswind Component
= 99.4%

Figure 2-5 shows the generalized land uses around the airport. To the north and west, the land is generally undeveloped with isolated industrial uses, residences, or ranches. Immediately south of the airport there is still much vacant land, but it is being developed into new industrial/ office parks. Further south, one half mile from the airport, is an area of new single family home development. Immediately to the west of the airport is an older area of mixed industrial, distribution, open storage and wholesale uses. In addition, trailer parks and some older, single houses occupy areas both east and west of the freeway. Retail uses occur along Deer Valley Drive and the freeway frontage roads, and some apartment buildings are located south of Deer Valley Drive between 23rd Avenue and the freeway.

e. Community Socio-Economic Characteristics

Deer Valley Airport is located in Deer Valley Village, one of nine "Urban Villages" into which Phoenix has been divided for purposes of community planning.

The Phoenix Planning Department has prepared population and employment projections for each of the urban villages. Since the original plan projections, growth projections[1] have been refined to reflect the 1980 census and current forecasts.

In 1980, Deer Valley Village had a population of 44,512 out of a total Phoenix population of 809,267. Population in the village is projected to grow rapidly: to 55,800 in 1985; 69,000 in 1990, 82,700 in 1995, and 97,700 in 2000.

Employment in Deer Valley Village is projected to grow at an even more rapid rate, from 9,600 in 1980 to 17,200 in 1985, 28,900 in 1980, 46,400 in 1995, and 63,900 in 2000. The employment is expected to shift from 70 percent basic and 30 percent service in 1980 to 60 percent basic and 40 percent service in 2000.[2]

Average residential density in Deer Valley Village was a low 3.5 dwelling units per acre in 1980, compared to a city-wide average of 4.3. By 2000, residential density in the village is projected to be 5.1 dwelling units per acre, higher than the projected city-wide average of 4.8 for that year.

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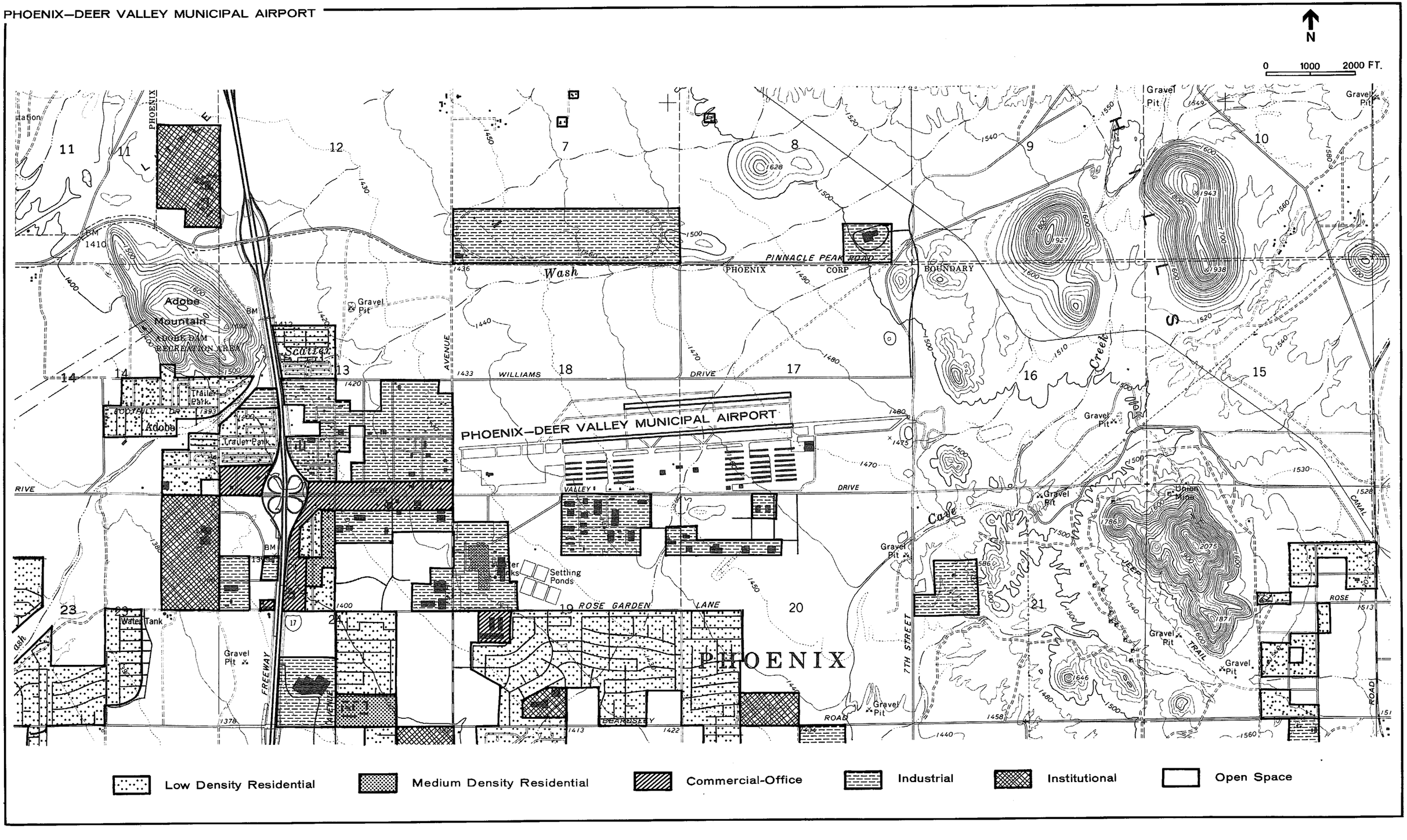
[1] Phoenix Urban Villages: Citizen Planning in Action, City of Phoenix Planning Department, October 26, 1983.

[2] "Basic" refers to persons directly engaged in manufacturing or production: "service" includes all other types of employment.

GENERALIZED LAND USE

FIGURE 2-5

PHOENIX—DEER VALLEY MUNICIPAL AIRPORT



These projections are indicative of the vitality of the area and especially of the north growth corridor. For the airport, the development pressures raise questions of the long-term compatibility of urban development with aircraft operations. These are addressed in Chapter 7 of the report.